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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,662	12/19/2001	Yinyan Huang	P-1094	6526

7590 04/09/2004  
Scott R. Cox  
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Louisville, KY 40202

EXAMINER

MARTIN, ANGELA J

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 04/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/025,662	<b>Applicant(s)</b> HUANG ET AL.	
	<b>Examiner</b> Angela J. Martin	<b>Art Unit</b> 1745	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 and 17-22 is/are pending in the application.  
4a) Of the above claim(s) 15 and 16 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17, 18 and 21 is/are allowed.
- 6) ☒ Claim(s) 1-9, 12-14, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 10, 11 and 22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/25/02</u> . | 6) <input type="checkbox"/> Other: _____  |

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## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of claims 1-14, 17-22 in Paper No. 1/23/04 is acknowledged.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-9, 12-14, 19, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Deeba et al., U.S. Pat. No. 6,093,378.

Rejection of claims 1-9, 12-14 drawn to a filter system; claims 19, 20 drawn to an exhaust treatment system.

Deeba et al., teach a filter system comprising a filter substrate (col. 17, lines 8-15) coated with a material, wherein the material comprises an inorganic adsorbent (support materials)(col. 12, lines 10-17) secured to the substrate (carrier) by an inorganic binder (col. 12, lines 1-9), and an acidic material coated onto the substrate (col. 10, lines 23-30). It also teaches the composition of the filter substrate is ceramic, alumina, or a metallic filter (col. 17, lines 8-15). Additionally, it teaches the inorganic adsorbent is silica, alumina, titania, titania-silica, silica-alumina (col. 12, lines 10-17); inorganic adsorbent comprises a high surface area material of alumina, with a surface

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area greater than 100 m<sup>2</sup>/g (col. 12, lines 31-43). It teaches the inorganic binder is alumina, silica, zirconia, titania, ceria (col. 12, lines 1-9). It also teaches the filter substrate comprises stainless steel screen (honeycomb)(col. 17, lines 13-15) and the inorganic binder comprises ceria (col. 12, lines 6-8). It also teaches the acidic material comprises an inorganic acid (col. 18, lines 15-19). The binder comprises about 1 to 10 weight percent (col. 12, lines 1-6), greater than 45 percent inorganic adsorbent, and greater than 0.1 percent acidic material (col. 17, lines 64-67 and col. 18, lines 1-30). It also teaches a filter system comprising a filter substrate, a high surface area inorganic adsorbent secured to the substrate by an inorganic binder, and an inorganic acidic material coated onto the filter substrate (col. 12, lines 1-43). In addition it teaches an exhaust treatment system comprising the filter system of claim 1 and an oxidation catalyst (col. 17, lines 20-34); and an exhaust treatment system comprising the filter system of claim 14 and an oxidation catalyst (col. 17, lines 20-56).

Although Deeba et al., do not specifically state "a filter system for adsorbing contaminants **from a molten carbonate fuel cell exhaust stream**", the patentability of a product is independent of how it was made. *Ex parte Jungfer* 18 USPQ 1796, 1800 (BPAI 1991); *Brystol-Myers Co. v. U.S. International Trade Commission* 15 USPQ 2d 1258 (Fed. Cir. 1989). The burden is on applicants to show product differences in product by process claims. *In re Thorpe* 227 USPQ 964 (Fed. Cir. 1985); *In re Best* 195 USPQ 430 (CCPA 1977).

Thus, the claims are anticipated.

***Allowable Subject Matter***

4. Claims 10, 11, and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter:

The Applicant claims the filter system of claim 1 wherein the acidic material comprises a non-water soluble inorganic acid; wherein the acidic material comprises heteropolyphosphoric acid.

Although the prior art of record teaches acetic acid in the filter system, there is no suggestion in the prior art of record to employ a non-water soluble inorganic acid; nor is there a suggestion that the acidic material comprises heteropolyphosphoric acid.

The Applicant claims a process for preparing an exhaust treatment system for filtering exhaust gases from a molten carbonate fuel cell comprising preparing the filter system of claim 1, preparing an oxidation catalyst for fuel cells, and placing the filter system and oxidation catalyst on-line to filter the exhaust gases from the molten carbonate fuel cell.

Although the prior art discloses a process for preparing an exhaust treatment system for filtering exhaust gases, the prior art of record does not disclose a process for preparing an exhaust treatment system for filtering exhaust gases **from a molten carbonate fuel cell** as described above.

6. Claims 17, 18, and 21 allowed.

7. The following is an examiner's statement of reasons for allowance:

In claim 17, the Applicant claims a process for filtering contaminants present in an exhaust stream of a molten carbonate fuel cell comprising passing a fuel stream through the molten carbonate fuel cell, passing at least a portion of an exhaust stream containing inorganic contaminants through a filter system, and filtering the contaminants from the exhaust stream by use of the filter system, wherein the filter system comprises a filter substrate, an inorganic adsorbent secured to the substrate by an inorganic binder and an acidic material coated onto the substrate. Claim 18 depends on claim 17.

In claim 21, Applicant claims a process for filtering contaminants present in an exhaust stream of a molten carbonate fuel cell comprising passing a fuel stream through the molten carbonate fuel cell which generates an exhaust stream containing inorganic contaminants, passing at least a portion of an exhaust stream containing inorganic contaminants through a filter system, filtering the contaminants from the exhaust stream by use of the filter system, wherein the filter system comprises a filter substrate, an inorganic adsorbent secured to the substrate by an inorganic binder and an acidic material coated onto the substrate and passing the filtered exhaust stream through an oxidation catalyst.

Although the prior art discloses a process for filtering contaminants in an exhaust stream, the prior art of record does not disclose a process for filtering contaminants present in an exhaust stream **of a molten carbonate fuel cell** as described above.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela J. Martin whose telephone number is 571-272-1288. The examiner can normally be reached on Monday-Friday from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
AJM